

## Appendix A

Acute Reference Exposure Levels Summary Table  
and Table of Hazard Index Target Organs

Determination of Acute Toxicity Exposure Levels  
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**Table A-1. Acute Reference Exposure Levels (RELs)<sup>1</sup> and Toxicologic Endpoints**

Chemical Name (CAS #)	REL ( $\mu\text{g}/\text{m}^3$ )	Sp. <sup>3</sup>	Toxicologic Endpoints <sup>4</sup>	Severity <sup>6</sup>
Acrolein (107-02-8)	$4 \times 10^{-1}$	H	Eye Irritation	Mild
Acrylic Acid (79-10-7)	$6 \times 10^3$	R	Respiratory Irritation	Mild
Ammonia (7664-41-7)	$3 \times 10^3$	H	Eye and Respiratory Irritation	Mild
Arsenic and Inorganic Arsenic Compounds	$4 \times 10^{-1}$	M	Reproductive/Developmental	Severe
Arsine (7784-42-1)	$2 \times 10^2$	M	Hematologic System	Severe
Benzene (71-43-2)	$8 \times 10^2$	M	Immune Response	Mild
Benzyl Chloride (100-44-7)	$5 \times 10^2$	M&R	Eye and Respiratory Irritation	Mild
Carbon Disulfide (75-15-0)	$2 \times 10^4$	R	Reproductive/Developmental	Severe
Carbon Monoxide <sup>2</sup> (630-08-0)	$2.3 \times 10^4$	H	Cardiovascular System	Mild
Carbon Tetrachloride (56-23-5)	$5 \times 10^3$	R	Reproductive/Developmental	Severe
Chlorine (7782-50-5)	$2 \times 10^2$	H	Respiratory Irritation	Mild
Chloroform (67-66-3)	$4 \times 10^2$	R	Respiratory Irritation; Reproductive/Developmental	Mild, Severe <sup>5</sup>
Chloropicrin (76-06-2)	$7 \times 10^0$	M	Eye and Respiratory Irritation	Mild
Copper and Compounds	$1 \times 10^2$	H	Respiratory Irritation	Mild
1,4-Dioxane (123-91-1)	$6 \times 10^3$	H	Eye and Respiratory Irritation	Mild
Epichlorohydrin (106-89-8)	$3 \times 10^3$	H	Eye and Respiratory Irritation	Mild
Ethylene Glycol Monobutyl Ether (111-76-2)	$1 \times 10^4$	Rb	Reproductive/Developmental	Severe
Ethylene Glycol Monoethyl Ether (110-80-5)	$9 \times 10^2$	R	Reproductive/Developmental	Severe
Ethylene Glycol Monoethyl Ether Acetate (111-15-9)	$3 \times 10^2$	Rb	Reproductive/Developmental	Severe
Ethylene Glycol Monomethyl Ether (109-86-4)	$2 \times 10^1$	R	Hematologic System	Mild
Formaldehyde (50-00-0)	$3 \times 10^2$	H	Eye Irritation	Mild
Hydrochloric Acid (7647-01-0)	$2 \times 10^3$	H	Eye and Respiratory Irritation	Mild
Hydrogen Cyanide (74-90-8)	$3 \times 10^2$	Mnky	CNS <sup>4</sup> - serious	Severe
Hydrogen Fluoride (7664-39-3)	$2 \times 10^2$	H	Eye and Respiratory Irritation	Mild
Hydrogen Sulfide (7783-06-4)	$1 \times 10^2$	H	Respiratory Irritation	Mild
Isopropyl Alcohol (67-63-0)	$3 \times 10^3$	H	Eye and Respiratory Irritation	Mild
Mercury (Inorganic) (7439-97-6)	$2 \times 10^0$	R	Reproductive/Developmental	Severe
Methanol (67-56-1)	$3 \times 10^4$	H	CNS <sup>4</sup> - mild	Mild
Methyl Bromide (74-83-9)	$4 \times 10^3$	D	CNS- serious; Respiratory Irritation	Severe

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Chemical Name (CAS #)	REL ( $\mu\text{g}/\text{m}^3$ )	Sp. <sup>3</sup>	Toxicologic Endpoints <sup>4</sup>	Severity <sup>6</sup>
Methyl Chloroform (71-55-6)	$7 \times 10^4$	H	CNS - mild	Mild
Methyl Ethyl Ketone (78-93-3)	$3 \times 10^4$	H	Eye and Respiratory Irritation	Mild
Methylene Chloride (75-9-2)	$8 \times 10^4$	H	CNS - mild	Mild
Nickel and Nickel Compounds	$1 \times 10^{-1}$	H	Respiratory Irritation; Immune Response	Mild
Nitric Acid (7697-37-2)	$9 \times 10^1$	H	Respiratory Irritation	Mild
Nitrogen Dioxide <sup>2</sup> (10102-44-0)	$4.7 \times 10^2$	H	Respiratory Irritation	Mild
Ozone <sup>2</sup> (10028-15-6)	$1.8 \times 10^2$	H	Eye and Respiratory Irritation	Mild
Perchloroethylene (127-18-4)	$1 \times 10^4$	H	CNS - serious; Eye and Respiratory Irritation	Severe
Phenol (108-95-2)	$6 \times 10^3$	H	Eye and Respiratory Irritation	Mild
Phosgene (75-44-5)	$4 \times 10^0$	R	Respiratory Irritation	Mild
Propylene Oxide (75-56-9)	$6 \times 10^3$	M	Eye and Respiratory Irritation	Mild
Selenium and Selenium Compounds	$3 \times 10^0$	GP	Eye and Respiratory Irritation	Mild
Sodium Hydroxide (1310-93-2)	$5 \times 10^0$	H	Skin, Eye, and Respiratory Irritation	Mild
Styrene (100-42-5)	$2 \times 10^4$	H	Eye and Respiratory Irritation	Mild
Sulfates <sup>2</sup>	$1.2 \times 10^2$	H	Respiratory Irritation	Mild
Sulfur Dioxide <sup>2</sup> (7446-09-5)	$6.6 \times 10^2$	H	Respiratory Irritation	Mild
Sulfuric Acid and Oleum	$1 \times 10^2$	H	Respiratory Irritation	Mild
Toluene (108-88-3)	$4 \times 10^4$	H	CNS - mild; Eye and Respiratory Irritation	Mild
Triethylamine (121-44-8)	$3 \times 10^3$	H	CNS - mild; Eye Irritation	Mild
Vanadium Pentoxide (1314-62-1)	$3 \times 10^1$	H	Respiratory Irritation	Mild
Vinyl Chloride (75-01-4)	$2 \times 10^5$	H	CNS - mild; Eye and Respiratory Irritation	Mild
Xylenes (m,o,p-isomers)	$2 \times 10^3$	H	Eye and Respiratory Irritation	Mild

<sup>1</sup> Rounded to one significant figure except for ambient air quality standards.

<sup>2</sup> California Ambient Air Quality Standard

<sup>3</sup> Species used in key study for REL development: D = dog; GP = guinea pig; H = human;  
 M = mouse; Mnky = monkey; R = rat; Rb = rabbit

<sup>4</sup> CNS = Central Nervous System

<sup>5</sup> Exposure above the REL may result in mild and severe effects.

<sup>6</sup> Refers to effect severity levels-- see Hazard Identification section of main text or Table 6

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**Table A-2. Hazard Index Target Organs**

Chemical Name (CAS #)	Target Organs
Acrolein (107-02-8)	Respiratory System; Eye
Acrylic Acid (79-10-7)	Respiratory System; Eye
Ammonia (7664-41-7)	Respiratory System; Eye
Arsenic and Inorganic Arsenic Compounds	Reproductive/Developmental
Arsine (7784-42-1)	Hematologic System
Benzene (71-43-2)	Immune System; Hematologic System; Reproductive/developmental
Benzyl Chloride (100-44-7)	Respiratory System; Eye
Carbon Disulfide (75-15-0)	Reproductive/Developmental; Nervous System
Carbon Monoxide <sup>2</sup> (630-08-0)	Cardiovascular System
Carbon Tetrachloride (56-23-5)	Reproductive/Developmental; Nervous System; Alimentary Tract
Chlorine (7782-50-5)	Respiratory System; Eye
Chloroform (67-66-3)	Respiratory System; Nervous System; Reproductive/Developmental
Chloropicrin (76-06-2)	Respiratory System; Eye
Copper and Compounds	Respiratory System
1,4-Dioxane (123-91-1)	Respiratory System; Eye
Epichlorohydrin (106-89-8)	Respiratory System; Eye
Ethylene Glycol Monobutyl Ether (111-76-2)	Reproductive/Developmental; Respiratory System; Eye
Ethylene Glycol Monoethyl Ether (110-80-5)	Reproductive/Developmental
Ethylene Glycol Monoethyl Ether Acetate (111-15-9)	Reproductive/Developmental; Nervous System
Ethylene Glycol Monomethyl Ether (109-86-4)	Hematologic System
Formaldehyde (50-00-0)	Eye; Respiratory System; Immune System
Hydrochloric Acid (7647-01-0)	Respiratory System; Eye
Hydrogen Cyanide (74-90-8)	Nervous System
Hydrogen Fluoride (7664-39-3)	Respiratory System; Eye
Hydrogen Sulfide (7783-06-4)	Respiratory System
Isopropyl Alcohol (67-63-0)	Respiratory System; Eye
Mercury (Inorganic) (7439-97-6)	Reproductive/Developmental
Methanol (67-56-1)	Nervous System

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Chemical Name (CAS #)	Target Organs
Methyl Bromide (74-83-9)	Nervous System; Respiratory Irritation; Reproductive/developmental
Methyl Chloroform (71-55-6)	Nervous System
Methyl Ethyl Ketone (78-93-3)	Respiratory System; Eye
Methylene Chloride (75-9-2)	Nervous System
Nickel and Nickel Compounds	Respiratory System; Immune System
Nitric Acid (7697-37-2)	Respiratory System
Nitrogen Dioxide <sup>2</sup> (10102-44-0)	Respiratory System
Ozone <sup>2</sup> (10028-15-6)	Eye; Respiratory System
Perchloroethylene (127-18-4)	Nervous system; Eye; Respiratory System
Phenol (108-95-2)	Respiratory System; Eye
Phosgene (75-44-5)	Respiratory System
Propylene Oxide (75-56-9)	Respiratory System; Eye; Reproductive/developmental
Selenium and Selenium Compounds	Respiratory System; Eye
Sodium Hydroxide (1310-93-2)	Eye; Skin; Respiratory System
Styrene (100-42-5)	Respiratory System; Eye; Reproductive/developmental
Sulfates <sup>2</sup>	Respiratory System
Sulfur Dioxide <sup>2</sup> (7446-09-5)	Respiratory System
Sulfuric Acid and Oleum	Respiratory System
Toluene (108-88-3)	Nervous System; Eye; Respiratory System; Reproductive/developmental
Triethylamine (121-44-8)	Nervous System; Eye
Vanadium Pentoxide (1314-62-1)	Respiratory System; Eye
Vinyl Chloride (75-01-4)	Nervous System; Eye; Respiratory System
Xylenes (m,o,p-isomers)	Eye; Respiratory System